

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
16 May 2002 (16.05.2002)

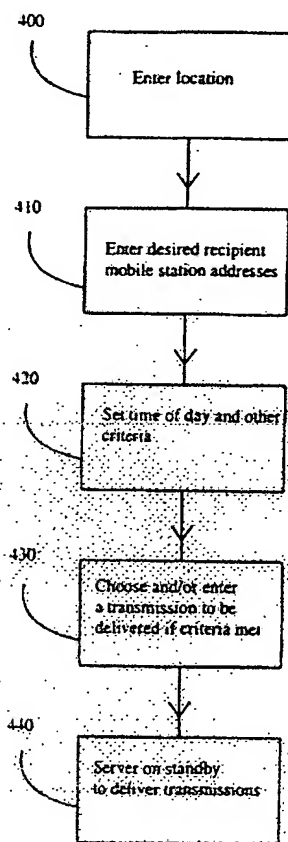
PCT

(10) International Publication Number
WO 02/39766 A1

- (51) International Patent Classification⁷: **H04Q 7/22** (74) Agent: **BERGGREN OY AB**; P. O. Box 16, FIN-00101 Helsinki (FI).
- (21) International Application Number: **PCT/FI01/00968**
- (22) International Filing Date:
7 November 2001 (07.11.2001)
- (25) Filing Language: **English**
- (26) Publication Language: **English**
- (30) Priority Data:
20002440 8 November 2000 (08.11.2000) **FI**
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- (81) Designated States (*national*): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW.
- (84) Designated States (*regional*): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

[Continued on next page]

(54) Title: **A MOBILE LOCATING AND MESSAGING METHOD AND MEANS**



(57) Abstract: The invention relates to a mobile locating and messaging method and means. In particular the invention relates to a method and means for locating a user and automatically triggering and delivering a message to the user depending on some criteria in a cellular network. A mobile locating and messaging method for at least one server and the Internet and/or the telephony network according to the present invention is characterised in that it comprises the steps of entering messaging criteria using a graphical interface, this step comprising at least one of the following substeps of: entering location (400) criteria, entering desired recipient mobile station addresses (410), and setting time of day and other criteria (420), and the method further comprises choosing and/or entering a transmission to be delivered when at least some of the messaging criteria are met (430).

WO 02/39766 A1



Published:

with international search report

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

A mobile locating and messaging method and means

The invention relates to a mobile locating and messaging method and means.

In particular the invention relates to a method and means for locating a user and
5 automatically delivering the user a message depending on some criteria in a cellular network.

Patent application WO 99/51048 discloses a method for sending short message service (SMS) messages where the originating subscriber can specify the time of delivery of the message, the priority associated with the message or that the message
10 is to be delivered only when the called subscriber is in a certain location. The SMS message, which the originating subscriber sends, contains criteria relating to the time of delivery, priority and/or location; no details are disclosed on entering the criteria for the SMS message. Two ways for delivering the SMS message to the receiver subscriber are disclosed. Either an SMS service center is arranged to send
15 the message to the receiver subscriber according to the specified criteria, or the message is sent to the receiver subscriber as usual and an SMS application in the receiver terminal is arranged to display the message according to the specified criteria.

Patent application WO 97/41654 discloses a method for disseminating information
20 to subscribers of a telecommunication network from at least one information source. The information messages are generated for a particular subscriber in accordance with a customer-defined profile of the subscriber, and the information messages may be transmitted at predetermined times, upon the occurrence of a predetermined event or they may be dependent on the subscriber's location – as specified in the
25 profile. The subscriber can define his profile via a telemarketing center or via the Internet and the World Wide Web Server.

The purpose of the present invention is to deliver cellular network users location dependent information, preferably instantaneously.

Most or all of the aforementioned advantages of the invention are preferably
30 implemented with a special exemplary embodiment of the invention, in which a user can choose a location from a map, for example on the Internet. He may then enter desired recipient mobile station addresses, like phone numbers. For example he may enter the numbers of his ten best mates, or upload his mobile phonebook to the

Internet site to be used as criteria. He may also set time of day and other criteria. He may then enter a message to be delivered if criteria are met. The message may be of the type: "Hey, your mate Jack lives here on West Street 123, Drop by!" After this a server will be on standby to deliver this message once criteria are met.

- 5 When a mobile station is detected in a cell, the mobile station address is retrieved. This mobile station number and location given by the cell and its range or possibly GPS is compared with other criteria. If there is a match the message is sent, preferably by SMS.

10 It is an object of the present invention to provide a mobile locating and messaging method for at least one server and the Internet and/or the telephony network, which method is characterised in that it comprises the following steps:

- entering messaging criteria using a graphical interface, this step comprising at least one of the following substeps of:

- entering location criteria,
- 15 -entering desired recipient mobile station addresses, and
- setting time of day and other criteria,

and

- choosing and/or entering a transmission to be delivered when at least some of the messaging criteria are met.

- 20 Preferably, the interface is Web interface.

In one preferred embodiment, the method further comprises the steps of,

- detecting mobile station in cell and/or by satellite,
- retrieving mobile station address,
- sending the transmission to the retrieved mobile station address.

- 25 In one preferred embodiment, the mobile station address is retrieved by network and the method further comprises the steps of:

- sending the retrieved mobile station address and location to a server, and

- choosing a transmission in accordance with the entered messaging criteria at the server.

It is a further object of the present invention to provide an arrangement for mobile messaging, the arrangement relating to a server for generating
5 messages/transmissions and sending the generated messages/transmissions to mobile subscribers, characterised in that it comprises means for providing to a user terminal a graphical user interface for entering messaging criteria via a packet switched network to the server, which is arranged to generate messages in accordance to the entered messaging criteria, said messaging criteria comprising at
10 least one of the following: location of the receiver mobile subscriber, time for sending the message/transmission and identifier of the receiver mobile subscriber.

In the following the invention will be described in greater detail with reference to exemplary embodiments in accordance with the accompanying drawings, in which

Figure 1 presents the most primitive embodiment of the invention associated with
15 message delivery as a flow diagram,

Figure 2 presents a more elaborate embodiment of the invention associated with message delivery as a flow diagram,

Figure 3 presents a more developed embodiment of the invention associated with transmission delivery as a flow diagram,

20 Figure 4 presents a more elaborate embodiment of the invention associated with messaging criteria as a flow diagram,

Figure 5 presents a more elaborate embodiment of the invention associated with message delivery in a GSM network as a loop diagram,

25 Figure 6 presents a specific embodiment of the server arrangement in accordance with the invention.

Some of the preferable embodiments are depicted in the dependent claims.

In phase 100 of figure 1 the mobile station is detected in the cell, provided it is a cellular mobile station. In some preferable embodiments the mobile station is an
30 UMTS-, GSM-, WAP-, Teldesic-, Inmarsat-, Iridium-, GPRS-, CDMA-, and/or WCDMA mobile station. Typically in some preferable embodiments, the subscriber terminal is a device using either the Microsoft Windows, Windows NT, Windows

CE, Windows Pocket PC, GEOS, Palm OS or the Epoc operating system. In some embodiments the location of the mobile station is detected by a satellite system, like GPS (Global Positioning System). In some embodiments the location of the mobile station is found accurately by several base stations using triangulation methods, or
5 other pinpointing methods using base stations. In some preferable embodiments the direction and/or speed of the user using the mobile station is also detected using Doppler shift methods and/or other relevant measurement methods.

Once the network has pinpointed the mobile station, the mobile station address, like the phone number or IP-address, is retrieved from the mobile station in phase 110. If
10 the position is found out by the mobile station, instead of the network, the location is also retrieved in phase 110 in some preferable embodiments. Once the location and the mobile station address are found out, a message is sent to the retrieved address of the mobile station in phase 120. The message is typically an MMS- (Multimedia Message Service) SMS message, SMS-CB (Cell Broadcast), USSD (Unstructured
15 Supplementary Service Data), PDS (packet data on signaling channels), WAPPush-message or an email. In some preferable embodiments the message is a discrete transmission delivered by FTP, TCP/IP, H323, HTTP and/or UDP or by some other direct transfer protocol. In some preferable embodiments the transmission is a normal phone call, which is automatically launched from the server. In some
20 preferable embodiments a phone call is automatically arranged between two parties, by connecting the recipient with another party by the transmission, or by connecting the other party to the recipient with the transmission. The telephony connection can be either circuit switched or packet switched or both in some preferable embodiments.

25 In phase 200 of figure 2 the mobile station is again detected by its location. In phase 210 the mobile station address is retrieved by the network. In phase 220 the retrieved mobile station address is sent to a server, typically maintained by a third party in some preferable embodiments. If the server is not already monitoring a particular location by default, the mobile station location is transmitted to the server
30 also, either by the network or by the mobile station in question.

In phase 230 a transmission suitable for the mobile station and its location is chosen at the server. The server may have several transmissions in store and clever algorithms for composing transmissions to suit the mobile station address and location. In phase 240 the chosen transmission is sent to the retrieved address of the
35 mobile station, or some other predefined address in some preferable embodiments. The transmission is typically an MMS- (Multimedia Message Service), SMS

message or an email. In some preferable embodiments the transmission is delivered by FTP, TCP/IP, H323, HTTP and/or UDP or by some other direct transfer protocol. The server is connected to an MMS and/or SMS gateway and/or the Internet and the telephony network in some preferable embodiments.

- 5 In phase 300 of figure 3 the mobile station is again detected by its location. In phase 310 the mobile station address is retrieved by the network. The mobile station address may be a phone number, an IP address, an email address, a URL address, FTP address SIP address (Session Initiation Protocol) and/or an ISDN address. In phase 320 the retrieved mobile station address and location information is sent to a
- 10 server in some embodiments. The location information may also be known by the server by default in some embodiments. The location information may be given in the form of a street address, latitude and longitude, cell ID and this location information may be converted interchangeably in accordance with the invention in some preferable embodiments.
- 15 In phase 330 a transmission is chosen at the server associated with the location and the subscriber profile. The server has typically access to subscriber profiles on the basis of the mobile station address. Subscriber profiles are collected from various sources on the Internet, from telephony operators or from other sources in some preferable embodiments. Alternatively, the subscriber profiles may be collected
- 20 from the subscribers directly in some preferable embodiments. For example, if the subscriber profile says the user is an automotive enthusiast a car advert is preferably sent as opposed to a diaper advert, whereas a diaper advert could be sent to a housewife.

In some preferable embodiments a user history is stored at the server and

25 incorporated with the subscriber profile. In some preferable embodiment the mobile station records the user history and transmits this to the network or server periodically. In some preferable embodiments the network and/or the Home Location Register of the network records a user history associated with a subscriber. If the user enters a cell or walks the same street everyday and a message was sent to

30 him yesterday, the same message will not be sent again later for some predefined period.

In phase 340 the chosen transmission is sent to the retrieved address of the mobile station, or some other predefined address in some preferable embodiments. In phase 350 the transmission or some relevant parts of it are displayed to the recipient on the

35 mobile station display. The transmission is typically an MMS- (Multimedia Message

Service) SMS message, USSD message, WAPPush message, SMS-CB (CellBroadcast) or an email. In some preferable embodiments the transmission is delivered by FTP, TCP/IP, H323, HTTP, UDP or by some other direct transfer protocol. In some preferable embodiments the message is a pop-up message as depicted in my patent application "A short messaging and advertising method and means". In some preferable embodiments the message is a voicemail message in accordance with my patent application "Voicemail Short Message Service method and means and subscriber terminal", FI20001838. In some preferable embodiments the message is a normal voicemail. In some preferable embodiments the message is displayed in place of the network operator logo or the cell ID logo.

In many preferable embodiments the messages are typically sent and/or deleted when a person enters or leaves a cell. If triangulation, satellite locating or other pinpointing methods are provided and/or supported by the network, the system may utilise more accurate location information. In these preferable embodiments the transmissions are typically sent when the mobile station confirms to have reached the specific location, or when the network notifies that the mobile station has been triangulated or otherwise pinpointed at the desired location. Especially GPS enabled mobile stations are able to confirm their location in some embodiments.

In figure 4 a method for setting up messaging criteria is described. Criteria can typically be inputted from a software interface to the server. Preferably, the user interface is a graphical user interface based on WWW/HTTP, HTML, H323, XML, WML or WAP. In this preferred embodiment, it is essential that the user interface is a graphical, packet switched interface through which the messages and their triggers can be entered interactively, and more extensively than with text syntax based means, such as SMS. In one of the most preferable embodiments the server may be accessed through the Internet, and the criteria can thus be entered through the Internet. In phase 400 the addresses and/or street names are entered in which subscribers are to be observed. In some embodiments, the cell ID or latitude and longitude coordinates are entered as the location criteria. The user has a map in front of him, typically in HTML format, to automate the process. The user just highlights an area on the map and the location information is converted to a favourable form that is understood by the inventive method. The highlighted area from the map can be associated plainly with the cell(s) servicing the area if better pinpointing methods within the cell are unavailable. By designating a position or an area with a pointer such as a mouse, the location is recorded. This user input can be translated to other coordinates, for example Greenwich coordinates, or any other coordinates by a

database that has the relevant record to perform the conversion. This database may reside on the server, or on another server hosted by a third party. In Finland such a server is available from Karttakeskus, for example. Typically a government agency will provide a database of this sort as a commercial service. This way the graphical
5 input of the user is converted to a form that can be used in analysing the locations returned by the cellular network, GPS, triangulation or other pinpointing method. In these preferable embodiments the messages are typically sent and/or deleted when a person enters or leaves a cell.

If triangulation, satellite locating or other pinpointing methods are provided and/or
10 supported by the network, the system may accept and convert more accurate location information as input. In these preferable embodiments the transmissions are typically sent when the mobile station confirms to have reached the specific location, or when the network notifies that the mobile station has been triangulated at the desired location. Especially GPS enabled mobile stations are able to confirm
15 their location.

In phase 410 the mobile station addresses of desired recipients are entered. In phase 420 the time of day, dates, validity period of profile and other relevant criteria may be set in some preferable embodiments. Date, Time, temperature or any other numerical variable can be entered by keyboard, or by an HTML form or the like.
20 Other relevant criteria in accordance with the invention may include temperature, wind speed, weather conditions, outcomes of sports events, traffic conditions, frequency and velocity of vehicles on common roads, contemporary news, local news, favourable response from other consumers or friends or any conceivable criteria or phenomenon(a) that can have an impact on consumer behaviour. Event
25 dependent criteria such as weather can be entered by HTML multichoice form, such as Choose: Rain/Sunshine.

Telephone number of the recipient may be entered by keying in the numbers, HTML form, copying and pasting an address book, phone book or the like by synchronization software.

30 In phase 430 a transmission is chosen, which will be delivered to the depicted recipients if all or some of the criteria are met in some preferable embodiments. The transmission is typically an MMS- (Multimedia Message Service) SMS message or an email. In some preferable embodiments the transmission is delivered by FTP, TCP/IP, H323, HTTP, UDP or by some other direct transfer protocol. In some
35 preferable embodiments the message is a pop-up message as depicted in my patent

application "A short messaging and advertising method and means". These messages are bioptional messages, and the user just has to answer whether he wishes to receive further information on the topic discussed in the message or not. He can delete the message by doing nothing or connect for further information by pressing one single key. In some preferable embodiments the message is displayed in place of the network operator logo and/or the cell ID logo.

AND/OR operations between the criteria may also be set with an HTML form, for example by choosing AND/OR operations with a mouse. One good embodiment could be for instance where, if location is met and 4/5 other criteria is met, a certain message is sent.

A message related to a certain set of parameters may likewise be entered in text to the HTML form.

The criteria set and the message are stored on the server, or transferred to another server. Anyway, the parameters on the server are then iterated against events that take place in the cellular network, or the environment. This server may for instance read the HLR/VLR of a telecom operator or a special location service of an operator or a third party, for example by automated SMS query, receive GPS information or triangulation information, and once a match occurs, send the message once a sufficient match is found.

Sending the message may be conducted as follows. The server will forward the telephone number, or the other entered address, such as an IP address to a SMS gateway, USSD gateway, SMSC, WAP-gateway or a like signaling gateway and the message itself. This gateway is interfaced with the telephony network and will forward the message to the recipient through the telephony network. SMS gateways and WAP gateways are already known technology for forwarding information from standard web connected servers to wireless handsets.

In figure 4, in phase 440 the server is set on standby to deliver messages. For example if the subscriber terminal numbered 040-5558367 is detected in the cell covering Mariankatu, Helsinki, Finland between 4 pm-12 pm, an SMS message saying "Drop by, Mikko I'm in. Regards, Aku" could be sent to the 040-5558367, number provided Aku or someone else would have entered the criteria that make this circumstance a match for sending this particular message. In some preferable embodiments the server is a SMC (Short Message Center) and/or in connection with an SMC, WAP-gateway, USSD-gateway and/or a SMS gateway.

In many preferable embodiments of the invention the content of the message is intelligently derived from the criteria and/or measurements done by the mobile station and/or network or satellite. For example, in some preferable embodiments the velocity of the subscriber can also be used as criteria for sending and/or
5 choosing and/or composing the relevant message. For example, a message could be of the type: "You are driving at 100 mph towards the nearest Burger King, which is 5 miles away, you'll reach it in 3 minutes, drop by!" As a further example, when the temperature in New York metropolitan area exceeds 25 degrees Celsius, all mobile station users could have a network operator logo sent to them by SMS or SMS-CB
10 which would read: "Coca Cola?" Any criteria that affect consumer behaviour can be used to define the target subscribers in accordance with the invention.

In some preferable embodiments this server interface may be an on-line store on the Internet where mobile advertising time is bought from the cell and/or operator logos displayed to network subscribers. In some embodiments it is an on-line store from
15 which advertising messages are disseminated location and/or other criteria dependently for a fee. All messaging criteria are simply entered on-line in some preferable embodiments. In some embodiments there are two sections, one for individual people delivering short messages and another for advertisers. In many preferable embodiments the server interface is all of the above.

20 The loop diagram of figure 5 represents an embodiment of the invention in the GSM network, which can be applied to other cellular networks as well. Typically in many preferred embodiments of the invention the Caller ID is read from the SIM card associated with the mobile station, and notified to the cellular network and base stations. In phase 500 the base station notifies the cell ID and the mobile station
25 number to the HLR (Home Location Register) maintained in the cellular network. More accurate location information may be included in the HLR as well, if this is available from the mobile station, base stations and/or from a satellite in some preferable embodiments. In phase 510 the Cell ID and the mobile station address are read from the HLR. This is typically done by software, which is incorporated into
30 the network, or by a third party software in a communications connection with the HLR.

In phase 520 the cell ID and the mobile station number are compared with other criteria, such as date, time of day etc., provided other criteria are found for the particular subscriber. If there is a mismatch with the criteria, the system does
35 nothing for some time and the observation of the HLR is continued, i.e. we return back to phase 500. In some preferable embodiments every time the mobile station

changes a cell the steps 500, 510, 520 are repeated. In some preferable embodiments the steps 500, 510 and 520 are repeated at regular or varying intervals.

If there is a match with the criteria, the message assigned to the criteria is chosen and delivered to an SMS gateway or an SMC in some preferable embodiments in
5 phase 530. In phase 540 the message is sent to the mobile station number which was initially retrieved. In phase 560 the message or some parts of the message or an indication of the arrival of the message are displayed on the display of the mobile station.

In many of the preferred embodiments of the invention the messages may have a set
10 lifetime; they may be arranged to disappear once the user enters a new cell, they may last simply a predefined period or they may be deleted by pressing any key or by a dedicated key. The messages and/or transmissions may also incorporate automatic connection methods depicted in my patent application "A short messaging and advertising method and means". In some preferable embodiments the messages
15 and/or transmissions embed electronic addresses, like phone numbers, ISDN-, FTP-, URL-, email-, SIP- and/or IP addresses.

In some preferable embodiments, the users can decline to accept incoming messages by a dedicated action that sends a signal to the network. In some preferable
20 embodiments this disables all or some parts of the information exchange between the HLR 600 and the server 610. In some preferable embodiments the user may invite incoming messages by enabling the network to transmit information from the HLR 600 to the server 610. In many preferable embodiments enabling and disabling are done by a dedicated signal recognised by the network. In some preferable
25 embodiments the signal is an email, SMS and/or an MMS message and/or a transmission delivered by FTP, TCP/IP, H323, HTTP and/or UDP and/or the transmission is a DTMF tone or a phone call.

Figure 6 shows a network arrangement 60 of a preferable embodiment of the invention. The user 660 who wants to send messages to subscribers is connected to the transmission server 610 directly or through the Internet. The server has access to
30 the HLR 600 of the cellular network, or to several Home Location Registers in some preferable embodiments. The user can enter the location and time and other criteria to the server for various subscribers 650. The subscribers are in connection with the cellular network, and thus the Home Location Register 600. The server 610 is arranged to monitor the HLR 600 continuously or at intervals, or the HLR 600 is

arranged to communicate subscriber information to the server continuously or periodically.

When the server 610 discovers that there is a match to the criteria with a particular subscriber(s), the transmission corresponding to this match is sent to the SMC
5 (Short Message Center) 630, and/or the SMS gateway 640. A SMS message is then typically sent from the SMC or the SMS gateway to the relevant subscriber terminal. If the subscriber terminal is detected and a match occurs, but the terminal is unable to receive the message, the message may be deleted or stored on the network, SMC and/or on the server 610. Depending on the type of the message, the message may
10 also be delivered through the Internet 620 or through the cellular network and/or the HLR 600 to the subscriber terminal 650. If a phone call is to be launched to the subscriber(s) 650, or between several subscribers the server is typically in connection with an MSC (Mobile Switching Center), or any external dialler in some preferable embodiments.

15 The invention has been explained above with reference to the aforementioned embodiments, and several commercial and industrial advantages of the inventive methods and arrangements have been demonstrated. The inventive method facilitates the efficient dissemination of location dependent information in a cellular network. This invention can be used to enhance advertising, and thereby reduce
20 consumer phone bills. This invention can also be used as a communication method between individuals and groups of people.

The invention has been explained above with reference to the aforementioned embodiments. However, it is clear that the invention is not only restricted to these
25 embodiments, but comprises all possible embodiments within the spirit and scope of the inventive thought and the following patent claims.

Claims

1. A mobile locating and messaging method for at least one server and the Internet and/or the telephony network, **characterised** in that it comprises the following steps:
 - 5 - entering messaging criteria using a graphical interface, this step comprising at least one of the following substeps of:
 - entering location (400) criteria,
 - entering desired recipient mobile station addresses (410), and
 - setting time of day and other criteria (420),
 - 10 and
 - choosing and/or entering a transmission to be delivered when at least some of the messaging criteria are met (430).
2. The method according to claim 1, **characterised** in that the interface is Web interface.
- 15 3. The method according to claim 1 or 2, **characterised** in that it further comprises the steps of,
 - detecting mobile station in cell and/or by satellite (100),
 - retrieving mobile station address (110),
 - sending the transmission to the retrieved mobile station address (120).
- 20 4. The method according to claim 3, wherein the mobile station address is retrieved by network (210) and the method further comprises the steps of:
 - sending the retrieved mobile station address and location to a server (220), and
 - choosing a transmission in accordance with the entered messaging criteria at the server (230).
- 25 5. The method according to any of preceding claims, **characterised** in that at least one recipient mobile station is a UMTS-, GSM-, WAP-, Teldesic-, Inmarsat-, Iridium-, GPRS-, CDMA-, GPS-, and/or WCDMA mobile station and/or is a device

arranged to use the Microsoft Windows, Windows NT, Windows CE, Windows Pocket PC, GEOS, Palm OS or the Epoc operating system.

5 6. The method according to any of claims 1 to 4, **characterised** in that at least one recipient mobile station address is a phone number, ISDN-, FTP-, URL-, email-, SIP- and/or IP address.

7. The method according to any of preceding claims, **characterised** in that at least one transmission is a message, which is an email, SMS, SMS-CB, USSD, PDS, WAPPush and/or an MMS message, and/or is a transmission delivered by FTP, TCP/IP, H323, HTTP and/or UDP and/or is a DTMF tone or a phone call launched
10 to the subscriber(s) or arranged between several subscribers.

8. A method according to any of the preceding claims, **characterised** in that the transmission or some relevant parts of the transmission are sent for display on the recipient mobile station display and/or in place of the network operator logo or cell logo on the recipient mobile station display.

15 9. A method according to claim 4, **characterised** in that it further comprises the step of:

- monitoring with said at least one server, continuously and/or periodically the network, to which mobile stations are connected, and/or the HLR of the said network.

20 10. A method according to claim 4 or 9, and wherein said at least one server is arranged to transmit a message and/or a transmission when entered messaging criteria or some parts of the entered messaging criteria are met.

11. A method according to any of claims 4, 9 or 10 **characterised** in that

25 -the said server (610) is arranged to be in connection with the Internet (620), at least one HLR (600), at least one SMC (630), at least one user (660) and/or SMS gateway (640),

-and the said server (610) is arranged to deliver messages and/or transmission to at least one subscriber via at least one SMC (630), SMS gateway (640) and/or the Internet (620) to at least one subscriber (650) provided the entered messaging
30 criteria (660) are met.

12. Arrangement for mobile messaging, the arrangement relating to a server for generating messages/transmissions and sending the generated messages/transmissions to mobile subscribers,

characterised in that it comprises

- 5 - means for providing to a user terminal a graphical user interface for entering messaging criteria via a packet switched network to the server, which is arranged to generate messages in accordance to the entered messaging criteria, said messaging criteria comprising at least one of the following: location of the receiver mobile subscriber, time for sending the message/transmission and identifier of the receiver
10 mobile subscriber.

13. A mobile locating and messaging arrangement, comprising at least one cellular radio link and/or a satellite pinpointing connection and a display, **characterised** in that

-a mobile station is arranged to deliver its address and/or location to a network,

- 15 -the network is arranged to associate the location and address and deliver this information to a third party in or in connection with the network,

-the mobile station is arranged to accept and display messages from the third party.

14. The mobile locating and messaging arrangement in accordance with claim 13, **characterised** in that the mobile station is a UMTS-, GSM-, WAP-, Teldesic-,
20 Inmarsat-, Iridium-, GPRS-, CDMA-, GPS-, and/or WCDMA mobile station and/or is a device arranged to use the Microsoft Windows, Windows NT, Windows CE, Windows Pocket PC, GEOS, Palm OS or the Epoc operating system.

15. The mobile locating and messaging arrangement in accordance with claim 13, **characterised** in that the user of the mobile station is arranged with the option of
25 inviting or denying incoming messages.

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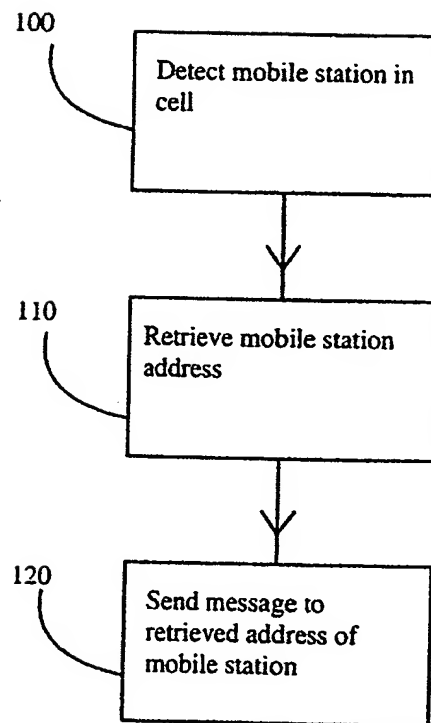


FIG 1.

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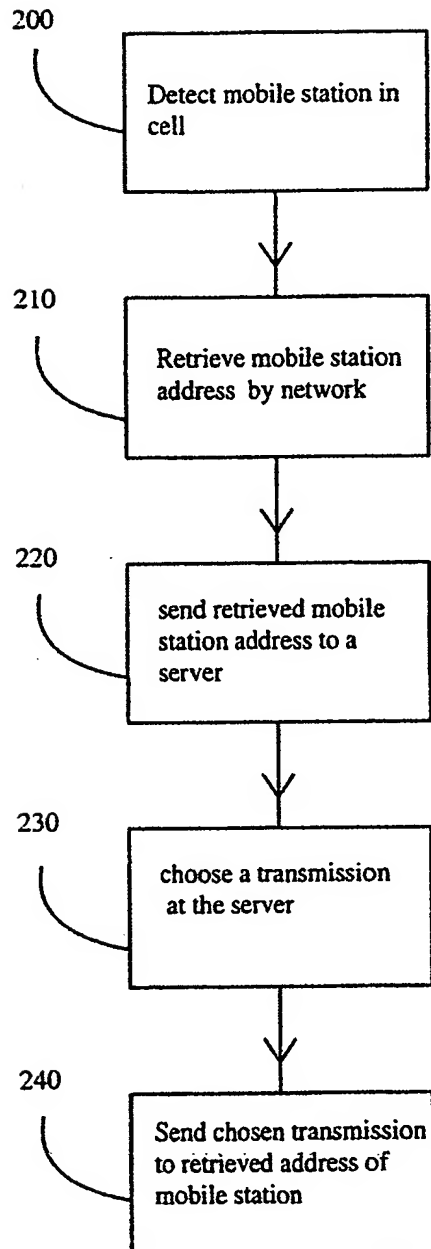


FIG 2.

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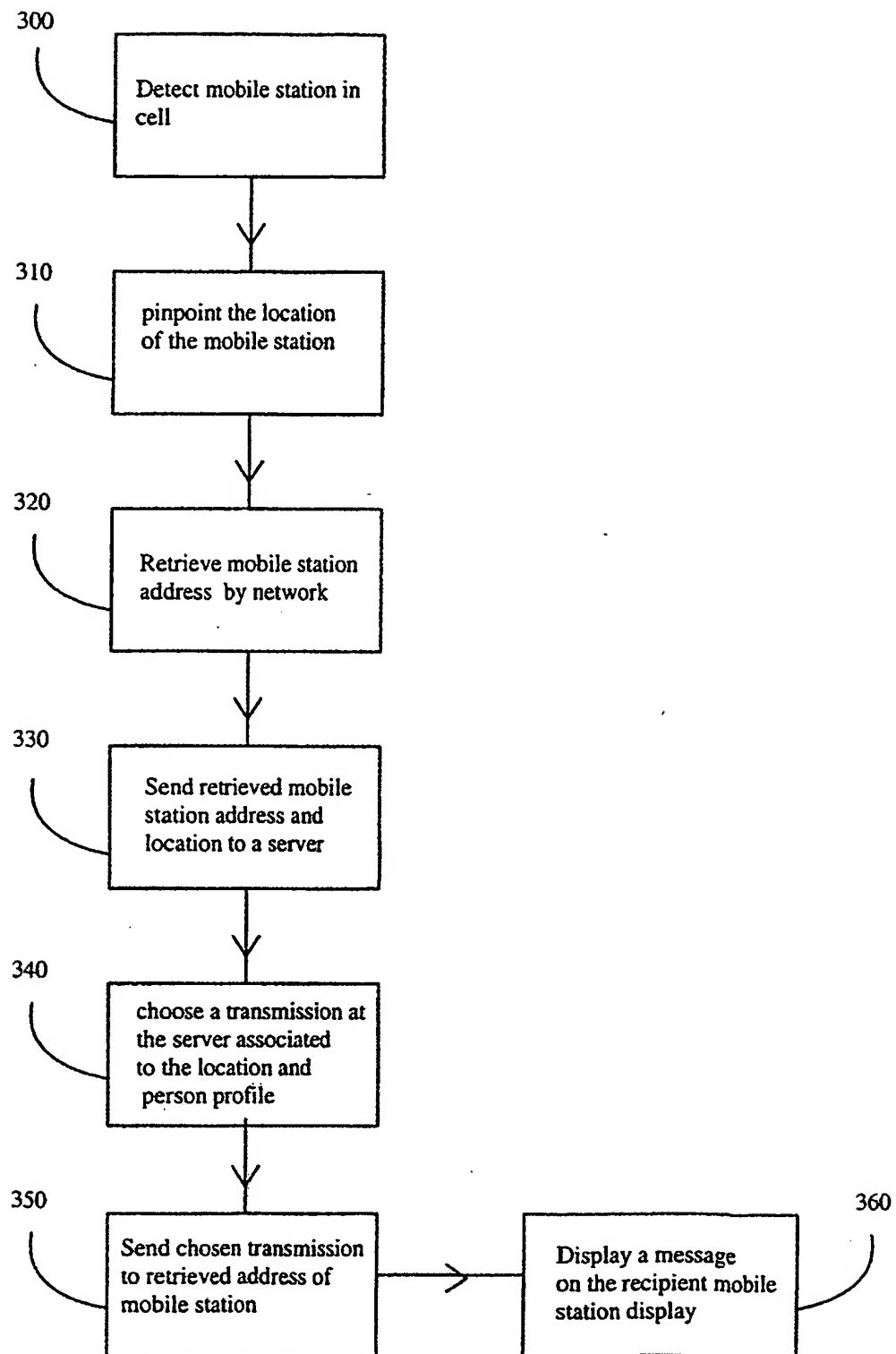


FIG 3.

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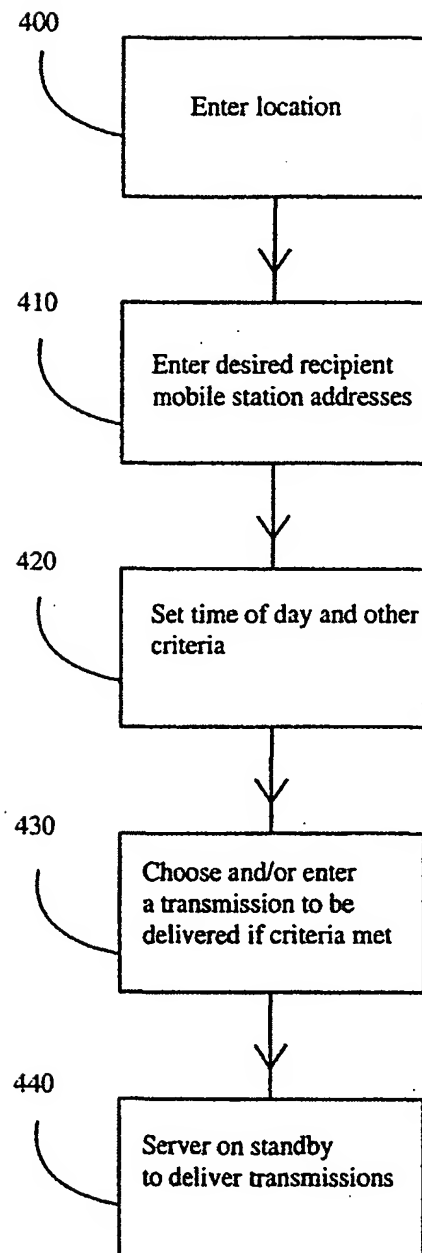


FIG 4.

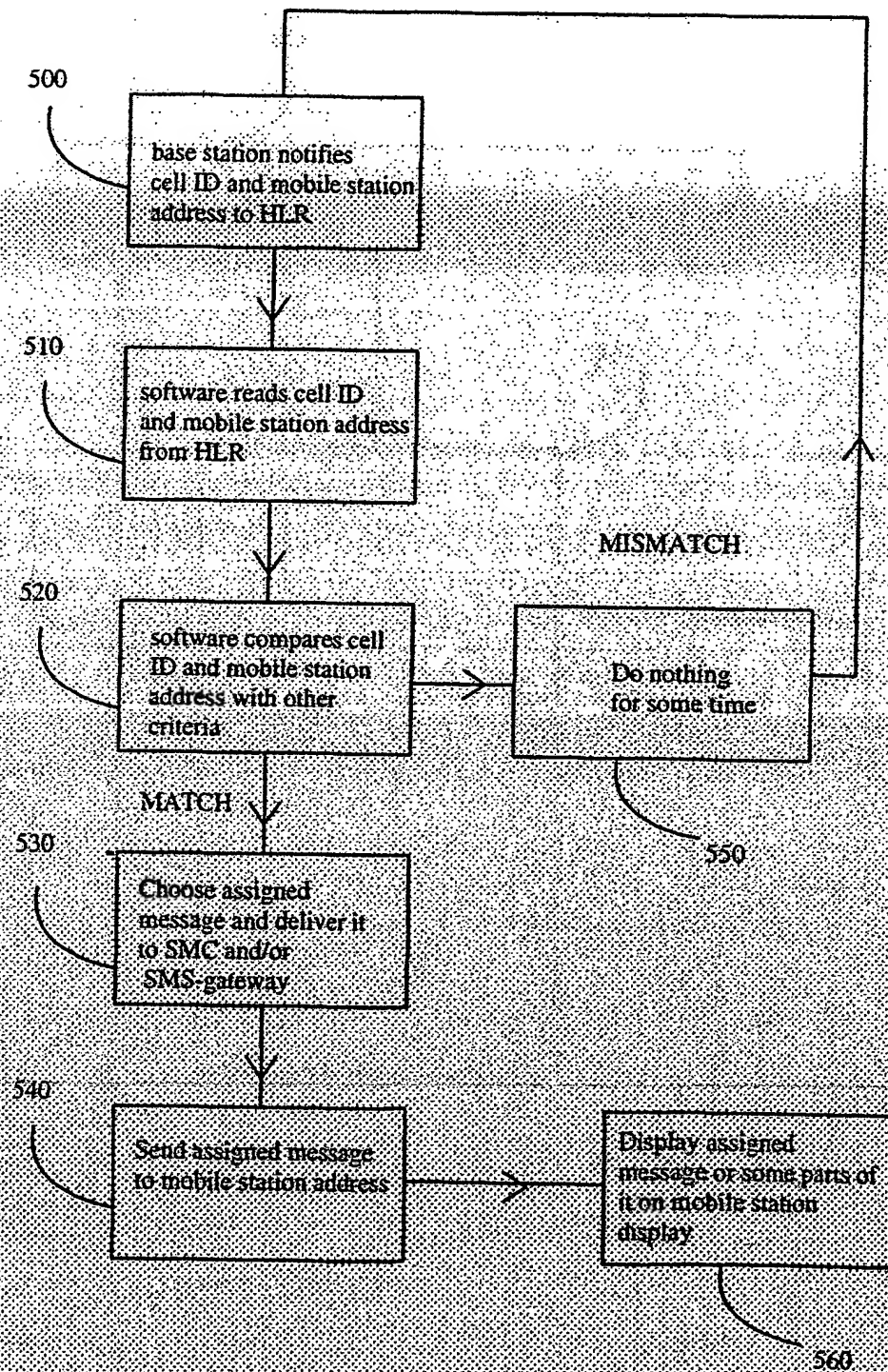


FIG. 5

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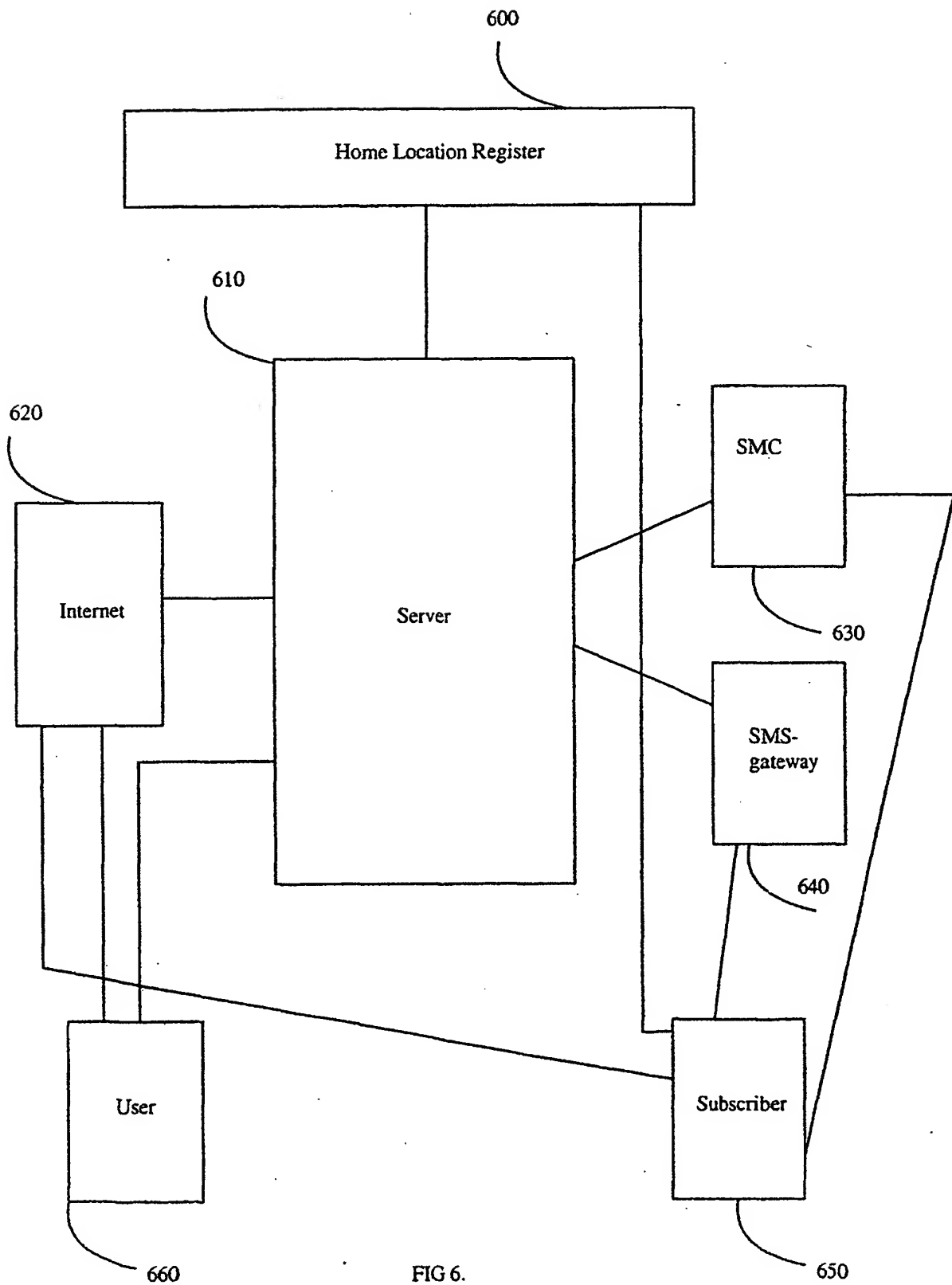


FIG 6.

INTERNATIONAL SEARCH REPORT

International application No.

PCT/FI 01/00968

A. CLASSIFICATION OF SUBJECT MATTER

IPC7: H04Q 7/22

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC7: H04Q

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

SE,DK,FI,NO classes as above

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	WO 9951048 A1 (ERICSSON INC.), 7 October 1999 (07.10.99), page 4, line 25 - page 5, line 6, abstract, cited in the application --	1-15
Y	US 5283856 A (GROSS ET AL), 1 February 1994 (01.02.94), column 1, line 35 - line 51; column 2, line 43 - column 3, line 5, abstract --	1-15
A	WO 9741654 A1 (TELEFONAKTIEBOLAGET LM ERICSSON), 6 November 1997 (06.11.97), page 1, line 29 - page 6, line 4, cited in the application --	1-15

☒ Further documents are listed in the continuation of Box C.
 ☒ See patent family annex.

* Special categories of cited documents:	* "T" later document published after the international filing date or priority date and not in conflict with the application, but cited to understand the principle or theory underlying the invention.
* "A" document defining the general state of the art which is not considered to be of particular relevance.	* "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone.
* "E" earlier application or patent but published on or after the international filing date.	* "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
* "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified).	* "&" document member of the same patent family.
* "O" document referring to an oral disclosure, use, exhibition or other means.	
* "P" document published prior to the international filing date but later than the priority date claimed.	

Date of the actual completion of the international search	Date of mailing of the international search report
26 February 2002	01-03-2002
Name and mailing address of the ISA/ Swedish Patent Office Box 5055, S-102 42 STOCKHOLM Facsimile No. +46 8 666 02 86	Authorized officer Elisabeth Åselius/BS Telephone No. +46 8 782 25 00

INTERNATIONAL SEARCH REPORT

International application No.

PCT/FI 01/00968

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	WO 0016209 A1 (LOCAL2ME.COM, INC.), 23 March 2000 (23.03.00), page 1, line 19 - page 5, line 18; page 6, line 5 - line 8; page 7, line 15 - line 18; page 19, line 3 - line 21; page 20, line 16 - line 30; page 23, line 11 - line 25; page 24, line 17 - line 29 --	1-15
A	US 6101393 A (ALPEROVICH ET AL), 8 August 2000 (08.08.00), column 1, line 34 - column 2, line 22, abstract --	1-15
A	WO 9926431 A1 (NOKIA TELECOMMUNICATIONS OY), 27 May 1999 (27.05.99), page 1, line 15 - page 4, line 5 -----	1-15

INTERNATIONAL SEARCH REPORT

Information on patent family members

28/01/02

International application No.

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Patent document cited in search report			Publication date	Patent family member(s)		Publication date
WO	9951048	A1	07/10/99	AU	3458499 A	18/10/99
				GB	0026711 D	00/00/00
				GB	2353190 A	14/02/01
				US	6119014 A	12/09/00
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WO	9741654	A1	06/11/97	AU	2375097 A	19/11/97
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